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BUTTERFLIES OF NORTHEAST TENNESSEE

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ABSTRACT. Here we give results of a 10-year survey of butterflies in a seven-county, 7000 km² area of NE Tennessee. Ninety-one species are listed and their seasonal occurrence tabulated on a 10-day basis. Twenty-seven species are judged to be univoltine, twenty-nine bivoltine, and twenty-one multivoltine. The remainder are thought to be migrants or strays that do not overwinter in NE Tennessee. Comparison of our species list with that of SW Virginia and N Georgia indicates the fauna lacks a number of lowland species that occur in N Georgia, and some typically northern species in SW Virginia. Ten species known to occur in both comparison areas, but not recorded here, will probably be found in the future.

Additional key words: Appalachians, biogeography, survey, Georgia, Virginia.

There is little published information on the butterfly fauna of Tennessee (Field et al. 1974). Osburn (1895a, 1895b) lists 70 species occurring around Nashville. Richards (1932) provides some Tennessee records. Watson (1946) and Snyder (1957) list some species occurring in the Smoky Mountains. The best source for the State as a whole is Opler (1983) which contains county distribution maps for all species occurring in the eastern U.S.

We have collected extensively in NE Tennessee for more than 10 years. Here we summarize results of our collecting, make comparisons with other areas in the S Appalachian region, and list additional species likely to occur in NE Tennessee.

Study Area

The area encompasses seven counties in NE Tennessee with a total area of 7000 km² (Fig. 1). Two physiographic subdivisions of the S Appalachian region are represented. The SE portion of the area lies within the Blue Ridge Province, the remainder in the Ridge and Valley Province.

The peaks of the Blue Ridge are known locally as the Unaka Mountains. They are characterized by rugged terrain and heavily forested slopes. Elevations vary from 450–600 m in the narrow valleys to 750–1900 m on the peaks. Underlying sedimentary and metamorphic rocks are Cambrian and Pre-Cambrian in age. Soils tend to be sandy and acidic. Most of this portion of the area lies within the Cherokee National Forest (Miller 1974, USDA 1953, 1956, 1985).

The Ridge and Valley portion is underlain by strongly folded sedimentary rocks of Ordovician and Cambrian age. Differential weathering has resulted in long, narrow sandstone ridges trending NE to SW, alternating with valleys developed on less resistant limestone and shale. The easternmost valley is broad and part of a series of connecting valleys extending from Pennsylvania to Alabama commonly called the Great Valley.

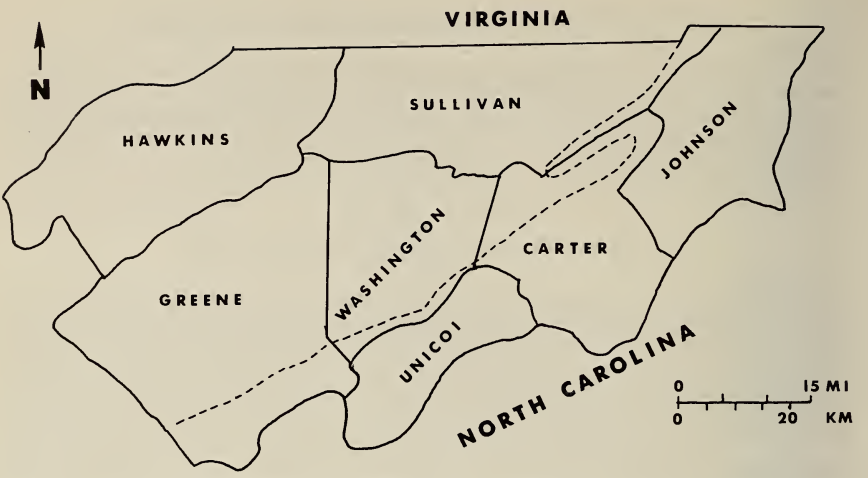

FIG. 1. Study area in NE Tennessee, showing county boundaries. Dashed line is approximate boundary separating Blue Ridge Province (Unaka Mts., SE) from Ridge and Valley Province (NW).

Within it there is local relief in the form of shale knobs and entrenched streams. To the NW, straddling the border of Greene and Hawkins counties, and extending into SW Sullivan Co., are a group of ridges collectively called Bays Mountain. Another prominent feature, Clinch Mountain, runs through NW Hawkins Co. Elevations average lower in the Ridge and Valley Province, ranging from 300 m in the valleys to 600–900 m on ridges. Ridge soils are generally sandy, shallow, and unproductive while valley soils developed on limestone are rich and fertile (Fenneman 1938, Miller 1974, U.S. Dep. Agric. 1953b, 1958a, 1958b, 1979, 1985).

The entire area is drained by the Holston River and its tributaries, part of the Tennessee River drainage system. The rivers have been extensively impounded for flood control and power generation (Hunt 1967).

Climate is characterized by mild winters and warm summers. Average annual precipitation is 100–150 cm except at highest elevations where it may exceed 200 cm. Topography and altitudinal differences cause much local variation in climate. As a rule, S- and W-facing slopes are drier than those facing N and E. Average frost-free season varies from 190 days in NW valleys to 150 days in the Unaka mountains (Walker 1969, U.S. Dep. Agric. 1953, 1979).

Before European settlement, the area was covered with oak-chestnut forest. Clearing of valleys for agriculture, logging in the mountains, and chestnut blight decimated primary forests, especially in the Ridge and Valley. Today forests are concentrated in the Unaka Mountains and on the NW ridges. At lower elevations, oaks (*Quercus* spp.), hickories (*Carya* spp.), yellow poplar (*Liriodendron tulipfera* L.) and other hardwoods are common, often mixed with hemlock (*Tsuga* spp.), and several pines (*Pinus* spp.). The Unaka Mountains are high enough to show altitudinal zonation. Above 900 m, northern forest types such as sugar maple (*Acer saccharum* Marsh.), beech (*Fagus grandifolia* Ehrh.), and yellow birch (*Betula alleghaniensis* Britton) are common. Above 1500 m, red spruce (*Picea rubens* Sarg.), and fraser fir (*Abies fraseri* [Pursh.] Poir) predominate. Treeless, dome-shaped summits called balds occur on some peaks. In the Ridge and Valley, stands of red cedar (*Juniperus virginiana* L.) are common in old fields on limestone soils. Marshes and canebrakes are rare throughout, most having been drained, cleared, or inundated by reservoirs (Braun 1950, Walker 1969, U.S. Dep. Agric. 1953a, 1953b, 1956, 1958a, 1958b, 1979, 1985).

METHODS

Most records come from collections and fields notes made by the authors from 1975 through 1986. Additional records were obtained from participants in a Southern Lepidopterist Society field meeting in the area in 1980, and from collections made by students at Sullivan (County) High School during fall 1977 and 1978. Collections at the U.S. National Museum (USNM) and the Carnegie Museum of Natural History (CMNH) were examined, but no additional records were found. Most specimens are retained in the authors' collections; others have been placed in USNM and CMNH. Some identifications were confirmed by C. V. Covell Jr., University of Louisville, and by R. K. Robbins and J. M. Burns (USNM). Butterfly nomenclature follows Hodges et al. (1983).

To facilitate comparison with NE Tennessee, we define SW Virginia as Giles, Montgomery, and Floyd counties and those counties to the SW entirely or predominantly within the transition zone of Clark and Clark (1951). North Georgia is defined as those counties entirely or predominantly within the mountain region of the State as defined by Harris (1972). Species records for these regions were obtained from Opler (1983), Clark and Clark (1951), and Harris (1972).

RESULTS AND DISCUSSION

We recorded 91 species of butterflies and skippers from NE Tennessee (Table 1). In addition, specimens of *Celastrina ladon* form *neglecta-major* Tutt, considered by some to be a distinct species (Opler & Krizek 1984), have been collected in May and early June. An old sight record for *Anaea andria* Scudder for which we do not have a precise date is not included in the table but is discussed below.

The species found in NE Tennessee can be considered as falling into two categories: residents, which overwinter in the area; and migrants or strays, which do not normally overwinter in the area, although many regularly occur in summer and fall.

A number of resident species are rare or local in distribution, but only one appears limited to a particular part of the study area. *Speyeria aphrodite* (F.) has been collected only in the Blue Ridge, where it is often common at elevations above 600 m.

Analysis of flight-period data in Table 1 to determine number of broods for resident species is complicated by the fact that the flight period of a species at any particular locality may vary from year to year due to climatic and biological factors. Flight periods are also affected by elevation, beginning and ending one to three weeks later at high elevations in the Blue Ridge than in the Ridge and Valley. For example, summer brood *Erynnis horatius* (Scudder & Burgess) has been collected at Bays Mountain Park (600 m) in Sullivan Co. from late June through mid-August, but a fresh specimen was collected in Carter Co. at 1200 m on 8 September.

We believe the following residents are univoltine in NE Tennessee:

Thorybes bathyllus (J. E. Smith)
T. pylades (Scudder)
Erynnis icelus (Scudder & Burgess)
E. brizo (Bdv. & Leconte)
E. juvenalis (F.)
Wallengrenia egremet (Scudder)

TABLE 1. Temporal distribution of butterfly species adults in NE Tennessee.

Species	Mar.		Apr.			May		
	11–20	21–31	1–10	11–20	21–30	1–10	11–20	21–31
Hesperiidae								
Epargyreus clarus				X	X	X	X	X
Autochton cellus								X
Achalarus lyciades								X
Thorybes bathyllus								
T. pylades								X
Staphylus hayhurstii								
Erynnis icelus				X	X	X		
E. brizo			X	X	X			
E. juvenalis			X	X	X	X	X	X
E. horatius								
E. baptisiae								
Pyrgus communis					X			
Pholisora catullus								
Nastra lherminier								X
Ancyloxypha numitor								X
Thymelicus lineola								
Hylephila phyleus								
Polites coras							X	X
P. themistocles								X
P. origenes						X		
Wallengrenia egeremet								
Pompeius verna							X	X
Atalopedes campestris								X
Atrytone delaware								X
Poanes hobomok							X	X
P. zabulon					X	X	X	X
Euphyes ruricola metacomet								X
Amblyscirtes hegon					X		X	
A. aesculapius							X	X
A. vialis				X		X		
Papilionidae								
Battus philenor			X	X	X	X	X	X
Papilio polyxenes asterius			X		X	X	X	
P. cresphontes								
P. glaucus		X	X	X	X	X	X	X
P. troilus			X	X	X	X	X	X
Eurytides marcellus		X	X	X	X	X	X	X
Pieridae								
Pontia protodice								
Artogeia virginiensis			X	X	X	X	X	X
A. rapae	X	X	X	X		X	X	X
Euchloe olympia		X	X	X		X		
Falcapica midea		X	X	X	X	X	X	
Colias philodice	X		X	X	X	X		X
C. eurytheme	X	X	X	X	X		X	
Phoebis sennae eubule								
Eurema lisa								
E. nicippe								

TABLE 1. Continued.

June			July			Aug.			Sept.			Oct.			Nov.	
1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20	21–31	1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20
X	X	X	X	X	X	X	X									
X			X	X												
X	X				X	X			X							
	X															
X	X	X														
		X														
X		X														
X																
		X			X		X		X							
			X	X	X	X										
												X	X	X		
							X									
						X	X	X		X						
X	X	X	X	X	X	X	X	X	X	X						
							X									
													X	X		
X	X			X	X	X	X	X		X						
X	X				X	X	X	X	X	X						
			X			X	X	X	X	X						
X	X		X						X							
X	X	X	X				X	X		X						
			X		X	X	X	X	X	X	X	X	X	X	X	X
	X	X	X			X	X	X	X	X						
X	X															
X	X				X	X	X	X	X	X						
X		X	X		X											
X	X															
X			X	X	X	X	X	X	X	X	X		X	X		
		X			X		X	X	X	X	X			X		
									X							
X		X		X	X	X	X	X	X	X						
X		X			X	X	X	X		X						
X	X	X							X	X						
													X			
X		X			X	X	X	X		X	X	X	X	X	X	X
X	X	X	X			X	X	X	X	X	X	X	X	X	X	X
X	X	X				X	X	X	X		X	X	X	X	X	X
									X							X
								X	X	X				X		
		X						X		X		X	X	X	X	

TABLE 1. Continued.

Species	Mar. 11–20	Mar. 21–31	Apr. 1–10	Apr. 11–20	Apr. 21–30	May 1–10	May 11–20	May 21–31
Lycaenidae								
Feniseca tarquinius						X		
Lycaena phlaeas americana					X	X		
Harkenclenus titus mopsus								
Satyrium calanus falacer								X
S. caryaevorum								
S. liparops strigosum								
Calycopis cecrops					X		X	
Mitoura grynea					X	X	X	
Incisalia augustus croesioides				X				
I. henrici		X	X	X	X	X	X	
I. niphon		X	X	X	X	X	X	
Parrhasius m-album								
Strymon melinus			X	X	X	X		
Erora laeta				X	X	X		
Everes comyntas			X	X	X	X		
Celastrina ladon		X	X	X	X		X	X
C. ebenina				X	X	X		
Glaucopsyche lygdamus				X	X	X		
Libytheidae								
Libytheana bachmanii								
Nymphalidae								
Polygonia interrogationis	X					X		X
P. comma	X	X	X					X
Nymphalis antiopa	X	X	X	X	X	X		X
Vanessa virginiensis				X	X		X	
V. cardui						X		
V. atalanta								X
Junonia evarete								
Euptoieta claudia								
Speyeria diana								
S. cybele						X		X
S. aphrodite								
Clossiana bellona toddi			X	X	X	X		X
Phyciodes tharos					X	X	X	X
Charidryas nycteis							X	X
Euphydryas phaeton								
Basilarchia arthemis astyanax								X
B. archippus								X
Apaturidae								
Asterocampa celtis							X	X
A. clyton								X
Satyridae								
Enodia anthedon								X
E. creola								
Cyllopsis gemma				X		X	X	
Hermeuptychia sosybius								X
Megisto cymela								X
Cercyonis pegala								
Danaidae								
Danaus plexippus					X			

TABLE 1. Continued.

June			July			Aug.			Sept.			Oct.			Nov.	
1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20	21–31	1–10	11–20	21–30	1–10	11–20	21–31	1–10	11–20
	X	X			X	X	X									
X	X	X	X			X										
	X	X	X													
X	X	X	X	X	X											
	X															
X	X		X													
					X		X									
		X			X											
X		X														
					X	X										
		X	X		X	X	X	X	X	X	X			X		
		X			X	X		X		X				X	X	
X	X	X		X	X	X		X		X						
	X	X	X		X		X									
	X	X	X		X	X	X	X	X	X					X	
X		X			X	X	X	X	X	X			X			
X						X		X								
		X	X	X	X		X	X		X				X	X	
						X		X		X				X	X	
X		X		X	X		X			X			X	X	X	
		X		X			X			X		X	X	X	X	
X	X	X	X	X	X	X	X	X	X	X	X					
		X	X	X	X											
X		X	X	X	X		X	X	X	X		X		X		
X		X		X	X		X	X		X	X	X	X	X		
X	X	X			X	X										
X		X														
X		X			X	X	X	X	X	X				X	X	
X		X			X	X	X	X	X	X	X	X			X	
X																
X		X			X		X	X	X							
							X			X	X					
X								X	X							
X					X	X		X	X							
X	X	X		X												
		X	X	X	X	X	X	X	X							
					X	X	X	X		X	X	X	X	X	X	

Poanes hobomok (Harr.)
Euphyes ruricola metacomet (Harr.)
Amblyscirtes hegon (Scudder)
Artogeia virginiensis (Edw.)
Euchloe olympia (Edw.)
Falcapica midea (Hbn.)
Harkenclenus titus mopsus (Hbn.)
Satyrium calanus falacer (Godt.)
S. caryaevorum (McD.)
S. liparops strigosum (Harr.)
Incisalia augustus croesioides (Scudder)
I. henrici (G. & R.)
I. niphon (G. & R.)
Celastrina ebenina Clench
Glaucopsyche lygdamus (Doubleday)
Speyeria diana (Cram.)
S. aphrodite
Euphydryas phaeton (Drury)
Megisto cymela (Cram.)
Cercyonis pegala (F.)

Speyeria cybele (F.) flies from May through September and would appear to be multivoltine, but the long flight period is caused by staggered emergence of a single brood (Opler & Krizek 1984, Scott 1986).

The following are bivoltine:

Autochon cellus (Bdv. & Leconte)
Achalarus lyciades (Gey.)
Nastra lherminier (Latr.)
Polites coras (Cram.)
P. themistocles (Latr.)
P. origenes (F.)
Pompeius verna (Edw.)
Atrytone delaware (Edw.)
Poanes zabulon (Bdv. & Leconte)
Lycaena phleas americana (Harr.)
Calycopis cecrops (F.)
Mitoura grynea (Hbn.)
Nymphalis antiopa (L.)
Charidryas nycteis (Doubleday)
Basilarchia arthemis astyanax (F.)
B. archippus (Cram.)
Asterocampa celtis (Bdv. & Leconte)
A. clyton (Bdv. & Leconte)
Enodia anthedon A. H. Clark
E. creola (Skin.)
Cyllopsis gemma (Hbn.)
Hermeuptychia sosybius (F.)

Fresh *Basilarchia archippus* and *B. arthemis astyanax* taken in October and early November indicate that partial third broods are produced when mild weather persists well into fall.

Additional species are probably bivoltine, though not apparent from our data. *Erynnis horatius* (Scudder & Burgess) and *E. baptisae* (Fbs.) should have spring broods on the wing in April and May. They have likely been overlooked amid large numbers of *E. juvenalis* flying at that time. *Pholisora catullus* (F.) is also likely to have a spring brood, and is probably more common than our records suggest. *Erora laeta* (Edw.), *Amblyscirtes aesculapius* (F.), *A. vialis* (Edw.), and *Staphylus hayhurstii* (Edw.) have been taken only in spring or early summer. All four species probably have second broods in summer overlooked due to very local occurrence.

Another group of resident species are multivoltine, with three or more broods per year:

Epargyreus clarus (Cram.)
Ancyloxypha numitor (F.)
Battus philenor (L.)
Papilio polyxenes asterius Stoll
P. glaucus L.
P. troilus L.
Eurytides marcellus (Cram.)
Artogeia rapae (L.)
Colias philodice Godt.
C. eurytheme Bdv.
Feniseca tarquinius (F.)
Strymon melinus Hbn.
Everes comyntas (Godt.)
Celastrina ladon (Cram.)

Polygonia interrogationis (F.)
P. comma (Harr.)
Vanessa virginiensis (Drury)
V. atalanta (L.)
Clossiana bellona toddi (Holl.)
Phyciodes tharos (Drury)

One additional species, *Parrhasius m-album* (Bdv. & Leconte), is probably multiple brooded. We have taken a worn specimen in SW Virginia near the Tennessee line in early May, and sources indicate that a third brood in late August–September is likely (Opler & Krizek 1984, Scott 1986).

We consider the following species to be migrants or strays:

Pyrgus communis (Grt.)
Hylephila phyleus (Drury)
Atalopedes campestris (Bdv.)
Papilio cresphontes (Cram.)
Pontia protodice (Bdv. & Leconte)
Phoebis sennae eubule (L.)
Eurema lisa (Bdv. & Leconte)
E. nicippe (Cram.)
Libytheana bachmanii (Kirtland)
Vanessa cardui (L.)
Junonia coenia (Hbn.)
Euptoieta claudia (Cram.)
Danaus plexippus (L.)

Most of these species overwinter in the SE coastal plain where they are multivoltine. As their populations expand during the summer, they move N and W, often penetrating into the Appalachians. Although they may reproduce during summer and fall, they generally cannot survive winter in NE Tennessee. There are exceptions, as evidenced by an April record for *Pyrgus communis*. In NE Tennessee, migrants are most likely to be found from mid-August through October. During this period *Atalopedes campestris* is one of the most common butterflies in gardens and disturbed areas. At the other extreme, *Papilio cresphontes, Pontia protodice,* and *Hylephila phyleus* are known from only one or two records. Remaining species are usually present every year in varying numbers. *Libytheana bachmanii* differs from the usual migrant pattern of occurrence in that it has been found from mid-June through mid-August. It is regularly present, but usually only as one or two individuals at a given time and place. We include it as a migrant because we have never collected overwintered individuals in spring.

We are not certain of the status of *Thymelicus lineola* (Ochs.) in NE Tennessee. It has been taken only once, near a campground in Sullivan Co. adjacent to a N-S interstate highway. This European species has spread rapidly southward since it was accidently introduced into Canada around 1910 (Scott 1986), and there are records from SE Kentucky and SW Virginia (Opler 1983). If not already a resident, it is likely to become one soon.

While walking in the late 50's or early 60's, the senior author saw a single *Anaea andria* flying in a clover field in Sullivan Co. Without a net he could not capture it, but followed it for a distance and was certain of the identification. This species is resident around Center Hill

Lake, 130 km E of Nashville, and the junior author recently captured several overwintered individuals in Lee Co., SW Virginia. While we have not seen *A. andria* in NE Tennessee during the past 10 years, it is somewhat migratory (Scott 1986), and should be expected on occasion.

Southwest Virginia and N Georgia have more species than NE Tennessee, 120 and 108, respectively. This disparity is at least partly due to the fact that Virginia and Georgia have been collected longer than NE Tennessee.

Amblyscirtes aesculapius was the only species found in NE Tennessee that has not been recorded from SW Virginia. The Clarks (1951) recorded it only from the coastal plain of Virginia, but there are records from E Kentucky, and it probably occurs locally along rivers in SW Virginia. *Euchloe olympia* and *Clossiana bellona toddi* are resident in NE Tennessee, but are not known to occur in N Georgia. These species are at or near the limits of their ranges in NE Tennessee.

The 39 species recorded from SW Virginia and/or N Georgia not collected in NE Tennessee are listed in Table 2. Sixteen of these species are known only from SW Virginia, nine from N Georgia only, and fourteen occur in both regions.

Many species recorded from SW Virginia but not from NE Tennessee are northern species whose ranges extend southward in the Appalachian region. Southwest Virginia includes the entire breadth of the mountainous Blue Ridge Province, and elevations in the Valley and Ridge Province exceed 1200 m in places (Fenneman 1938). More extensive areas of high elevation coupled with higher latitude make SW Virginia more hospitible for some northern species than NE Tennessee.

Species recorded from N Georgia but not NE Tennessee include *Satyrium kingi* (Klots & Clench), *Amblyscirtes carolina* (Skin.), *Agraulis vanillae* (L.), and other species more typical of the lowland Piedmont and Coastal Plain provinces. Relative to NE Tennessee, the Appalachian region of N Georgia is lower in elevation and has a milder climate. In particular, the prominent ridges that characterize the Ridge and Valley further N are absent (Fenneman 1938). Broad valleys open onto the Piedmont, while the oak-pine forest association and red-yellow podzolic soils characteristic of the Piedmont extend into the Georgia portion of the Ridge and Valley (Braun 1950, Walker 1969). These climatic and topographic factors create favorable habitats for some lowland species, and provide easy access for migrants.

We predict that the following species in SW Virginia and N Georgia will eventually be found resident in NE Tennessee:

Thorybes confusis Bell
Erynnis martialis (Scudder)
Hesperia metea (Scudder)
Wallengrenia otho (J. E. Smith)
Atrytonopsis hianna (Scudder)
Satyrium edwardsii (G. & R.)

TABLE 2. Butterfly species occurring in SW Virginia (VA) and N Georgia (GA) but not recorded from NE Tennessee.

Species	State
Thorybes confusis	VA, GA
Erynnis martialis	VA, GA
E. zarucco	VA, GA
E. lucilius	VA
E. persius	VA
Pyrgus centaurae	VA
Lerema accius	VA, GA
Hesperia metea	VA, GA
H. leonardus	VA
H. sassacus	VA
Polites mystic	VA
P. vibex	VA
Wallengrenia otho	VA, GA
Atrytone arogos	VA
Euphyes conspicua	VA
E. bimacula	VA
Atrytonopsis hianna	VA, GA
Panoquina ocola	VA, GA
Amblyscirtes carolina	GA
A. alternata	GA
Megathymus yuccae	GA
M. harrisi	GA
Zerene caesonia	GA
Eurema daira	VA, GA
Atlides halesus	VA
Satyrium edwardsii	VA, GA
S. kingi	GA
Incisalia irus	VA, GA
Fixenia ontario	VA
Calephelis borealis	VA
Agraulis vanillae	GA
Charidryas gorgone	GA
Speyeria idalia	VA
Clossiana selene	VA
Phyciodes batesii	VA, GA
Polygonia progne	VA
P. faunus	VA, GA
Enodia portlandia	GA
Satyrodes appalachia	VA, GA

Incisalia irus (Godt.)
Phyciodes batesii (Reak.)
Polygonia faunus (F.)
Satyrodes appalachia (R. Chermock)

Hesperia leonardus (Harr.), *H. sassacus* (Harr.), *Speyeria idalia* (Drury), and *Polygonia progne* (Cram.) have been recorded from bordering counties in Virginia and North Carolina (Opler 1983) and also seem likely to be found in NE Tennessee eventually.

It is possible that *Amblyscirtes celia belli* H. A. Freeman occurs in NE Tennessee. We have taken it flying with *Wallengrenia otho* in

moist woods beside an arm of Loudon Reservoir near Knoxville, Tennessee, about 65 air km SW of our study area boundary. Similar habitats should occur around reservoirs in NE Tennessee.

Additional migratory species such as *Erynnis zarucco* (Luc.) and *Panoquina ocola* (Edw.) may eventually turn up also, but lack of direct access from the Piedmont is a hindrance to the movement of such species; to enter NE Tennessee, they must first pass through the rugged North Carolina portion of the Blue Ridge, or travel a considerable distance up valleys from Georgia.

Concentration of collecting efforts on species listed above should increase the number of butterfly species known from NE Tennessee to between 100 and 110.

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GENERAL NOTE

GLASSBERG, LEHMAN, AND PELLMYR COLLECTIONS TO THE SMITHSONIAN INSTITUTION

Dr. Jeffrey S. Glassberg has donated his collection of New World butterflies to the National Museum of Natural History (Smithsonian Institution). It consists of more than 2000 specimens, primarily Neotropical Theclinae (approximately 350 species). Dr. Glassberg is a molecular geneticist who lives in Chappaqua, New York, and is Vice President for Research of Lifecodes Corp. He has a strong interest in conservation and butterfly watching, and is currently President of the Xerces Society.

The Smithsonian Institution has received Mr. Robert Lehman's collection of Honduran Lepidoptera. There are 4222 meticulously spread specimens representing 1852 species, plus about 5000 papered specimens. The Macrolepidoptera are well represented, and there are many Pyralidae, Tortricidae, and Oecophoridae. Most of the specimens were collected along the wet Atlantic coast of Honduras, an area that is poorly represented in collections, and which augments the Smithsonian's strong holdings from Mexico, Guatemala, Costa Rica, and Panama. Mr. Lehman has been teaching elementary school science and, more recently, computer science, at the Mazapan School in La Ceiba, Honduras, for 9 years, and has been collecting in Honduras since 1968.

Dr. Olle Pellmyr has donated his collection of Fennoscandian (primarily Swedish) Lepidoptera to the Smithsonian Institution. It includes 6907 specimens of approximately 1200 species, and is rich in both Macro- and Microlepidoptera. Because so many Swedish species are close relatives of North American ones, this collection provides important comparative material. Dr. Pellmyr is an evolutionary biologist who works on chemical and ecological aspects of plant-pollinator mutualism and lepidopteran courtship behavior. He is a Swedish national, and currently a research scientist at the State University of New York at Stony Brook.

None of the collections contains primary type specimens.

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